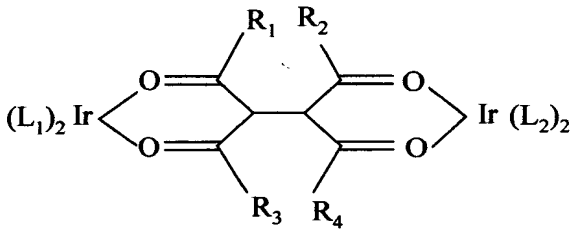
Listing of Claims

Please amend the claims as follows. This listing of claims will replace all prior versions and listings of claims in the application:

Claims

1. – 32. (Canceled)

33. (New) An electroluminescent diiridium compound having the general chemical formula:



where R_1, R_2, R_3 and R_4 can be the same or different and are independently selected from hydrogen, and substituted and unsubstituted hydrocarbyl groups; and L_1 and L_2 are organic ligands.

34. (New) A compound according to claim 33 where R_1, R_2, R_3 and R_4 are selected from substituted and unsubstituted aliphatic groups; substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures; fluorocarbon groups; and halogen

groups; R_1, R_2 and R_3 can also form substituted and unsubstituted fused aromatic, heterocyclic and polycyclic ring structures and can be copolymerisable with a monomer; and L_1 and L_2 are the same or different organic ligands.

35. (New) A diiridium compound according to claim 34 wherein L_1 and L_2 are selected from phenyl pyridine and substituted phenylpryidines.

36. (New) An electroluminescent device comprising in combination: (i) a first electrode; (ii) a layer of a diiridium compound according to claim 33; and (iii) a second electrode.

37. (New) An electroluminescent device comprising in combination: (i) a first electrode; (ii) a layer of a diiridium compound according to claim 34; and (iii) a second electrode.

38. (New) An electroluminescent device according to claim 36 wherein the diiridium compound is mixed with an effective amount of an electroluminescent europium complex.

39. (New) An electroluminescent device according to claim 38 wherein the europium complex is a europium organometallic or organic complex having the general chemical formula $(L\alpha)_3Eu$ where $L\alpha$ is an organic complex.

40. (New) An electroluminescent device according to claim 38 wherein the europium organometallic or organic complex has the general chemical formula

$$\left(L\alpha\right)_3 Eu \leftarrow Lp$$

where Lα and Lp are organic ligands with Lp being a neutral ligand, the ligands Lα can be the same or different, and there can also be a plurality of ligands Lp which can be the same or different.

41. (New) An electroluminescent device according to claim 39 wherein the europium complex is $Eu(DBM)_3OPNP$.

42. (New) An electroluminescent device according to claim 36 wherein there is a layer of a hole transmitting material positioned between the first electrode and the diiridium compound layer.

43. (New) An electroluminescent device according to claim 37 wherein there is a layer of a hole transmitting material positioned between the first electrode and the diiridium compound layer.

44. (New) An electroluminescent device according to claim 42 wherein the hole transmitting material is selected from aromatic amine complexes and conjugated polymers.

45. (New) An electroluminescent device according to claim 42 wherein the hole transmitting material is a film of a polymer selected from poly(vinylcarbazole), N,N'-diphenyl-N,N'-bis (3-methylphenyl) -1,1' -biphenyl -4,4'-diamine (TPD), polyaniline, substituted polyanilines, polythiophenes, substituted polythiophenes, polysilanes and substituted polysilanes, a polymer of a cyclic aromatic compound, poly (p-phenylenevinylene)-PPV, copolymers of PPV, poly(2,5 dialkoxyphenylene vinylene), poly (2-methoxy-5-(2-methoxypentyloxy-1,4-phenylene vinylene), poly(2-methoxypentyloxy)-1,4-phenylenevinylene), poly(2-methoxy-5-(2-dodecyloxy-1,4-phenylenevinylene) and other poly(2,5 dialkoxyphenylenevinylenes) with at least one of the alkoxy groups being a long chain solubilising alkoxy group, poly fluorenes, oligofluorenes, polyphenylenes, oligophenylenes, polyanthracenes, oligo anthracenes, polythiophenes and oligothiophenes.

46. (New) An electroluminescent device according to claim 36 wherein there is a layer of an electron transmitting material positioned between the diiridium compound layer and the second electrode.

47. (New) An electroluminescent device according to claim 46 wherein the electron transmitting material is selected from metal quinolates and cyano anthracenes.

48. (New) An electroluminescent device according to claim 46 wherein the electron transmitting material is an aluminium quinolate or lithium quinolate.

49. (New) An electroluminescent device according to claim 46 wherein the second electrode is selected from aluminium, calcium, lithium, and silver/magnesium alloys.

50. (New) An electroluminescent device according to claim 42 wherein the hole transmitting material and the diiridium compound are mixed to form one layer in a proportion ranging from about 5 to 95% of the hole transmitting material to about 95 to 5% of the diiridium compound.

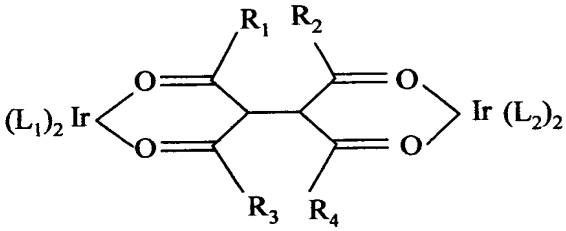
51. (New) An electroluminescent device according to claim 46 wherein the electron transmitting material and the diiridium compound are mixed to form one layer in a proportion ranging from about 5 to 95% of the electron transmitting material to about 95 to 5% of the diiridium compound.

52. (New) An electroluminescent device according to claim 36 wherein there is a copper phthalocyanine layer on the first electrode and a lithium fluoride layer on the second electrode.

53. (New) An electroluminescent device comprising in combination: (i) a first electrode; (ii) a layer of a hole transmitting material; (iii) a layer of a diiridium compound

according to claim 33; (iv) a layer of an electron transmitting material; and (v) a second electrode.

54. (New) An electroluminescent device according to claim 53 wherein the diiridium compound has the general chemical formula



where R_1, R_2, R_3 and R_4 are independently selected from substituted and unsubstituted aliphatic groups; substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures; fluorocarbon groups; halogen or thiophenyl groups; R_1, R_2 and R_3 can also form substituted and unsubstituted fused aromatic, heterocyclic and polycyclic ring structures and can be copolymerisable with a monomer; and L_1 and L_2 are the same or different organic ligands.

55. (New) An electroluminescent device according to claim 54 wherein L_1 and L_2 are selected from phenyl pyridine and substituted phenylpryidines.